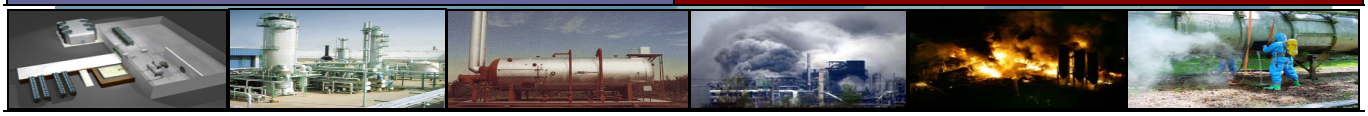
U.S. Environmental Protection Agency, Region 10

Clean Air Act 112(r) Newsletter

Accident Release Prevention Requirements | Risk Management Programs



June-July 2006

Inside This Issue

This newsletter provides information on the Risk Management Program and other issues relating to the Accidental Release Prevention Requirements of the Clean Air Act. The information should be used as a reference tool, not as a definitive source of compliance information. Compliance regulations for CAA section 112(r) are published in 40 CFR Part 68.

EPA Penalizes Facilities for Mismanaging and Releasing Hazardous Chemicals

(WA) Kalama chemical maker fined nearly $57,000 for ammonia release - **EPA** has ordered Noveon Kalama Inc., to pay $56,995 for releasing more than 500 pounds of ammonia from its Kalama, Wash., facility. In addition to the penalty, Noveon will also perform a Supplemental Environmental Project that will provide $112,990 to pay for emergency response equipment for Cowlitz County and the City of Kalama, Washington. Noveon did not notify local and state agencies until approximately four hours after the ammonia release was discovered. (May 23, 2006)

(OR) American Energy, Inc. to pay $585,000 for Clean Water Act violations resulting from oil spill - **T**he American Energy, Inc. has agreed to pay $585,000 to the United States and the Confederated Tribes of the Warm Springs Reservation in Oregon to resolve allegations that it discharged 5,388 gallons (128 barrels) of unleaded gasoline into Beaver Creek, located on the Reservation in March of 1999. The spill was caused by a tanker truck and trailer roll-over. (May 18, 2006)

(AK) EPA reaches settlement with Dean"s Auto Salvage for hazardous waste and used oil violations - **EPA** on May 15 announced a settlement for $69,078 with Dean"s Auto Salvage for failure to properly manage hazardous waste and used oil at its facility in Anchorage, Alaska. Dean"s Auto Salvage will pay the penalties over a three year period. (May 15, 2006)

(MA) Nova Chemicals, Inc. to pay for Safety Violations Following Release of Styrene - **A** major chemical company in Indian Orchard, Mass., NOVA Chemicals, Inc., will pay a fine of $13,800 to settle an EPA claim that they failed to implement measures designed to prevent releases of styrene, an extremely hazardous substance, as required by the Clean Air Act. In addition, the company has agreed to undertake a Supplemental Environmental Project (SEP) that consists of donating emergency response equipment to its local fire department, at a cost of about $14,000. EPA alleged that the facility violated the Clean Air Act through its failure to comply with the "general duty" clause to identify hazards that may result from accidental releases of extremely hazardous substances. This can be done by using the appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur. (May 31, 2006)

Research Institute Issued Key Findings on Survey of RMP Deregistered Facilities

The Center for American Progress (a nonpartisan research and educational institute), with assistance from the National Association of State PIRGs and National Environmental Trust, conducted a nationwide survey of the facilities that formerly reported using extremely hazardous substances under the EPA risk management program (RMP), but have deregistered from the program after switching to safer chemical alternatives. Chemical facilities deregister from the RMP upon notifying EPA that they no longer use a regulated substance; have reduced regulated chemicals below reporting thresholds; or have terminated, merged or moved operations. The key findings from the survey were released on April 2006 and include the following:

- Some 284 facilities in 47 states have dramatically reduced the danger of a chemical release into nearby communities by switching to less acutely hazardous processes or chemicals or moving to safer locations.
- As a result of these changes, at least 38 million people no longer live under the threat of a major toxic gas cloud from these facilities.
- Of respondents that provided cost estimates, roughly half reported spending less than $100,000 to switch to safer alternatives and few spent over $1 million.
- Survey respondents represent a range of facilities small and large, including water utilities, manufacturers, power plants, service companies, waste management facilities, and agricultural chemical suppliers.
- The most common reasons cited for making changes included the security and safety of employees and nearby communities, as well as regulatory incentives and business opportunities.
- Facilities reported replacing gaseous chlorine, ammonia, and sulfur dioxide, among other chemicals.

When industries were asked why they had switched to safer chemicals or processes, the most common reasons cited were:

- Concern over an accidental chemical release and improved safety- 33,7%
- Concern over terrorism and improved security- 18.2%
- Legal or regulatory requirements- 16.5%
- Meeting community expectations- 8.7%
- Improved operations efficiency or business opportunities- 5.9%
- Projected cost savings- 5.4%
- Other- 4.5%
- No answer- 7.1%

Industry "*QUOTES*"

"***When*** *the Risk Management Plan was submitted, (our) off-site consequence analysis indicated that 5,000 people would be adversely affected if an accidental chlorine release occurred. So for the safety of the public and plant operators, the City switched to a nonhazardous substitute for chlorine gas.*" –Director, McMinnville Wastewater Plant, McMinnville, Tenn.

"***The*** *change (from gaseous ammonia) to the ammonia solution (liquid) results in an inherently safer workplace, and the chance of a toxic release affecting the public is negated.*" –Regulatory Manager, Manhattan Products, Carlstadt, N.J.

"***Switching*** *(from anhydrous sulfur dioxide) to the safer sodium bisulfite is a good best practice for the industry.*" –Environmental Manager, Cargill, Inc., Memphis, Tenn.

"**The** conversion (of anhydrous ammonia to aqueous ammonia) *was considered a safeguard from impacting the communities in which we operate.*" –Director of Environment and Safety, GWF Power Systems, Calif.

"***No*** *longer handling anhydrous ammonia (after switching to less- hazardous fertilizers) has safety benefits for our employees, customers and general public because of health hazards if there was a sudden release. Theft of NH3 for use in illegal drug manufacturing has been eliminated.*" –Manager, Leone Grain & Supply, Peru, Ill.

Industry News

Water Treatment Plants Are Switching to Less Hazardous Chemical Alternatives

As of yearend 2005, some 114 wastewater facilities and 93 drinking water plants nationwide reported switching to less acutely hazardous chemicals. Despite these improvements, approximately 1,150 wastewater facilities and 1,700 drinking water plants remain in the RMP program for extremely hazardous chemicals, primarily chlorine gas.

From Chlorine Gas to Liquid Bleach

Some 166 water utilities switched from chlorine gas to liquid bleach (aka sodium hypochlorite). Facilities frequently noted that liquid chlorine bleach is safer to work with than chlorine gas. Chemical costs tend to be higher for liquid bleach than chlorine gas, but overall costs are competitive when the full dangers and costs of safety and security are considered, according to respondents.

From Chlorine Gas to Ultraviolet Light

Some 42 facilities switched from chlorine gas to ultraviolet light for water treatment, eliminating chemical danger to over 3.5 million people. The use of ultraviolet light also eliminates the hazards of transporting and working with chlorine gas.

From Chlorine Gas to Bleach Generated On-Site

A dozen facilities now treat water by generating bleach disinfectant on-site. This practice eliminates bulk storage and transportation of hazardous chemicals. The process uses salt, water and electricity to produce a dilute bleach solution. Facilities noted that this dilute solution is even safer than the stronger bleach that many utilities receive by truck or rail. Generating bleach on-site virtually eliminates potential community and workplace exposure to toxic chemicals.

From Chlorine Gas to Calcium Hypochlorite

One wastewater facility reported switching from chlorine gas to calcium hypochlorite. This land-disposal facility spray-irrigates some 300 acres of hay fields with over a million gallons of treated wastewater each day. Calcium hypochlorite is less potentially harmful to soil than alternative sodium hypochlorite. Switching to calcium hypochlorite eliminates the risk of a chlorine gas leak to employees and nearby residents.

Other Industries Are Switching to Less Hazardous Chemicals

Agricultural Ammonia Facilities

From Anhydrous Ammonia Gas to Liquid or Granular Fertilizers

More than 4,000 current RMP facilities supply agricultural chemicals, principally anhydrous ammonia for use as fertilizer. Many of these facilities are small and located in less populated areas. Two dozen facilities reported eliminating anhydrous ammonia in favor of less acutely hazardous fertilizers. These facilities already sold liquid nitrogen or dry urea fertilizers, the commonly reported alternatives. These alternate fertilizers eliminate the danger of an ammonia gas release to employees, customers and the general public. This change also cuts potential liability, eliminates the burden of complying with hazardous materials regulations and prevents siphoning from fertilizer tanks for illegal methamphetamine (meth) production.

A number of facilities in this industry cited theft of anhydrous ammonia for illegal meth labs, a pervasive problem. One facility reported that night cameras and automatic dialers to the state police generated 28 arrests over a two-year period at just one facility. Thieves also can cause emergency releases. Common liquid or dry nitrogen fertilizers are not suitable for illegal meth production or for improvising explosives (such as the ammonium nitrate bomb used at the Oklahoma City federal building).

Electric Power Plants

Eleven power plants reported switching to less

acutely hazardous substances, eliminating previously reported off-site vulnerabilities to more than a million people. Electric power plants primarily report using anhydrous ammonia or aqueous ammonia in air pollution control equipment or chlorine gas to prevent fouling of cooling towers. Approximately 320 power plants are regulated under the RMP program. Examples of the various changes made are provided below.

From Anhydrous to Aqueous Ammonia

GWF Power Systems, Calif. produces electricity. At six California power plants, GWF formerly used anhydrous ammonia gas in air pollution control devices. GWF switched all six plants to aqueous ammonia below RMP thresholds as a safeguard to protect surrounding communities. Aqueous ammonia below RMP thresholds retains certain hazards, but is unlikely to form a gas cloud that can affect people off-site. (A less hazardous option than either gaseous or aqueous ammonia is dry urea, which allows power plants to generate ammonia on demand.) These six facilities combined formerly had more than 100,000 people living in their vulnerability zone areas.

From Anhydrous to Solid Sulfur Dioxide

Wisconsin Power's Pulliam Plant, Green Bay, Wis. switched from anhydrous sulfur dioxide, used to capture particulates in pollution control equipment, to a safer solid form of the chemical. The change eliminated potential off-site injury to any of 180,000 people.

From Chorine Gas to Bleach

The Public Service Company of Oklahoma (PSO) produces electricity. At three power plants, PSO switched from chlorine gas to chlorine bleach as a water treatment to prevent algae and fouling of cooling towers. Before making this simple change, these three facilities together endangered some 3,500 nearby residents in Oklahoma.

(Source: Center for American Progress http://www.crtk.org)

What Constitutes Hazardous Materials?

Many agencies are involved with the handling, use, and the problems associated with hazardous materials. Each of these agencies has identified hazardous materials as it relates to their realm of service. Several examples of these identifiers of hazardous materials are listed below:

- The Environmental Protection Agency (EPA) defines a hazardous material as a substance that may be potentially harmful to the public's health or welfare if it is discharged into the environment.

- OSHA and the National Institute for Occupational Safety and Health Administration (NIOSH) view a hazardous material from the standpoint of potential hazard. They rate conditions that may cause injury or death as they are found in the working environment, whether they are obvious or not.

- The Department of Transportation (DOT) defines a hazardous material as any substance or material in any form or quantity that poses an unreasonable risk to safety and health and to property when transported in commerce.

- The American Conference of Governmental Industrial Hygienists (ACGIH) does not define hazardous materials but has established levels of chemical substances that a person can be exposed to without sustaining permanent injury. These values guide industry in setting exposure limits on particular chemicals commonly found in their environment.

CAA 112(r) Regulated Facilities

Incident Summaries And Lessons Learned

➢ Allyl Alcohol Release and Vapor Cloud

Incident Description: On April 12, 2004, a chemical reactor overheated at the MFG Chemical manufacturing plant in Dalton, GA, releasing toxic allyl alcohol vapor. The resulting cloud sent 154 people to a local hospital and forced the evacuation of nearby residents. Vegetation and aquatic life near the plant were killed. Investigators found that MFG did not implement adequate controls to prevent a runaway reaction; the emergency plan for the 31,000 pounds of allyl alcohol present at the site focused only on its flammability, not its toxicity; MFG was not equipped to handle a toxic release, and when the release did occur the company communicated only the fire hazards of allyl alcohol to local responders. MFG was also unaware of federal EPA regulations that cover allyl alcohol as a toxic substance and that require an assessment of process hazards as well as the development of comprehensive accident prevention and response plans.

MFG Chemical Inc. facility where an uncontrolled chemical reaction released toxic allyl alcohol gas

➢ Explosion of Mixed Chemical Gases

Incident Description: On February 7, 2003, a worker was seriously injured in an explosion at Technic Inc. in Cranston, Rhode Island. The explosion occurred during maintenance on a ventilation system connected to multiple chemical reactors, evidently due to an accumulation of hazardous material inside. The investigators found that Technic did not identify and evaluate the hazards associated with installing a vent collection system to handle the exhausts from multiple processes and those created by changes to facility processes and equipment. The investigation also found that a lack of process and equipment integrity procedures and training, as well as poor emergency planning by Technic and the local fire department, contributed to the incident.

Damaged piping at Technic Inc. facility after a ventilation system explosion.

➢ Ethylene Storage Tank Failure, Explosion and Fire

Incident Description: On December 3, 2004, a storage tank failed catastrophically at the Marcus Oil and Chemical polyethylene wax facility in Houston, TX. The blast, which was felt up to 20 miles from the plant site, ignited large fires that burned for several hours, and two firefighters were injured during the emergency response. Off-site buildings near the facility exhibited structural damage, such as broken windows and cracked walls. According to investigator, the plant has five identically sized large pressure vessels that were bought as surplus in the early 1990s and then were modified for use at the facility. None of the five tanks had safety valves to release excess internal pressure. The American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requires pressure vessels to meet stringent design, fabrication, and testing requirements before use. In addition the code requires the installation of pressure relief valves to protect vessels from over-pressurization and possible rupture.

Fire rages at the Marcus Oil facility following powerful tank explosion.